

HYPERTHERMIA TREATMENT AND PROBE THEREFOR

ABSTRACT

A method of using a probe that emits energy to coagulate lesions is disclosed. The probe is constructed and arranged to emit light from its distal end, either at an angle to its longitudinal axis, or along its longitudinal axis. Optionally, an end reflector may be used to direct the energy in a beam to one side of the fiber end. A reinforcing sleeve for the fiber is mounted to a shielded, Piezo-electric motor constructed and arranged to move the fiber both longitudinally and rotationally within an optional elongate cannula. An MRI system is arranged to generate a series of output signals indicative of temperature in the targeted area. The application of energy is stopped when the temperature at the boundary of the lesion reaches the required hyperthermic temperature. Cooling of the tip portion of the probe is effected by expansion of a supplied cooling fluid through a restrictive orifice into an expansion zone at the probe end. The fiber is encased in a stiff tubular titanium probe with a relatively small fluid supply duct inside the probe with the interior of the probe acting as a return duct for the expanded liquid. The temperature of the probe end is monitored by a sensor in the probe end and controlled by controlling the pressure in the supplied cooling fluid.